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ROAD SAFETY CAMPAIGNS: WHAT THE RESEARCH TELLS US

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How effective are road safety campaigns?

Prior research from many countries over the past three decades has investigated the effects of road safety campaigns. While individual evaluations have focused on different road safety issues, and different measures of behaviour change (e.g., crash data, observational data, self-reported changes in behaviour, perceptions and attitudes), overall many have shown a range of positive outcomes and demonstrated that road safety campaigns can change perceptions and reduce crashes. One of the most prominent studies involves a European meta-analysis[1] of 437 effects extracted from 228 international studies conducted in 14 countries during the past 30 years. It revealed that road safety campaigns generally:

- reduced the number of road incidents by approximately 9%;
- increased seatbelt use by 25%;
- reduced speeding by 16%;
- increased yielding behaviour by 37%; and,
- increased risk comprehension by about 16% (Phillips et al. 2009).

What factors help to make a campaign effective?

A subsequent European meta-analysis that examined 119 effects extracted from 67 international studies further revealed insight into the features of campaigns that contribute to effectiveness in terms of crash reductions. These features included:

- drinking and driving campaigns;
- shorter duration (less than one month);
- personal communication;
- roadside delivery, use of roadside media, or delivered in proximity to the behaviour occurring;
- combined emotional/rational message has a stronger influence than a purely rational message;
- accompanied by enforcement; and,
- combined with mass media (Phillips et al. 2011).

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1 "Meta-analysis is a statistical technique used to summarize the results of a group of individual studies sharing a common research hypothesis and a common measure of effect. This approach is used is to estimate the size of the effect that an intervention (e.g., road safety campaigns) has according to several outcome measures (Phillips et al. 2009; p.25-26).

What theoretical models are most often used for evidence-based campaigns?

There is consensus among experts in the field of road safety that the best road safety campaigns are based on research-driven, psycho-social theories of behaviour. Some of the leading theories that have been used in this regard include behaviour change theories, theories of social persuasion, and fear-based campaigns. Examples of leading theories are briefly described below.

Behaviour change theories

- **Theory of Planned Behaviour (TPB).** This theory predicts that personal decisions (i.e., intentions) to carry out certain behaviours are based on a combination of: 1) attitudes toward the behaviour; 2) subjective norms; and, 3) perceived behavioural control. According to this theory, these three major factors influence a person to either engage in a specific behaviour, or to choose not to do so. For example, individuals who believe that speeding is a fun activity that most people engage in, and can do it easily without endangering others, are more likely to make decisions to engage in speeding behaviours compared to individuals with a different set of beliefs.

- **Health Belief Model (HBM).** This theory has been widely adopted to explain human behaviour. Its underlying premise is that the main motivator for people to preserve or protect their health is to avoid negative health behaviours. Key factors include susceptibility to the consequences of action, perceived seriousness of the consequences of action, perceived barriers that decrease the likelihood of action; perceived benefits that increase the likelihood of action; confidence in the ability to take action (i.e., self-efficacy); and, internal and external cues/motivators to affect the likelihood of action. Although other motivational factors might contribute to the adoption of the specific health behaviour, HBM proposes that avoiding a negative health outcome is the most influential factor (Delhomme et al. 2009).

- **Protective Motivation Theory (PMT).** This theory is similar to HBM in that it targets an individual's motivation to avoid actions that would be detrimental to their health. However, it more closely highlights the possible threats and vulnerability a person may feel from the idea of engaging in a negative behaviour. The concept of protection motivation stems from one's desire to protect or defend themselves against negative consequences of a behaviour based on fear and coping appraisal. In this model, self-efficacy also plays a very significant role in a person's decision to adopt the behaviour; it is the determining factor that results in change or resistance to change.

- **Transtheoretical Model of Change (TMC).** This model acknowledges that behavioral modification is a process that must be accounted for during the development of any campaign that aims to alter road user behaviour. It addresses this process and suggests that people may be in different stages of change and must pass through the five stages of change (i.e., pre-contemplation, contemplation, preparation, action, and maintenance) before

permanent behaviour change can occur. The model suggests that these stages are fluid and that it is possible for an individual to move forward and backwards between the stages.

Theories of social persuasion

- **Social Norms Theory.** This theory suggests behaviour is influenced by (often inaccurate) perceptions of how other members of a person's social group think and behave (Yanovitzky 2004). This phenomenon is similar to the 'bandwagon effect' described by McAllister & Studlar (1991) which predicted that personal beliefs are strengthened if it is believed that others share the same attitudes and perceptions towards the behaviour. It suggests that a person's social perceptions may have a more powerful effect on behaviour than the risks to health or safety.

- **Elaboration-Likelihood Model.** According to this model, developed by Petty and Cacioppo (1986), the likelihood that a person will elaborate or change their attitude is dependent on a person's motivations and their ability to elaborate on the situation. In other words, individuals are motivated to process a message if it is viewed as personally relevant or if they feel a high level of personal or social responsibility regarding the behaviour (Wundersitz et al. 2010). This means that audiences that have prior knowledge of the issue, and possess the ability to understand the message, are more likely to use this route.

For more information about theoretical models of road safety campaigns, please review the full report entitled "Road Safety Campaigns-What the Research Tells Us" contained in the Toolkit.

Are fear-based appeals that use graphic and shocking images an effective approach to road safety campaigns?

Campaigns that utilize fear-based appeals often receive more media attention due to the use of graphic and shocking images. While this approach can produce the desired results, it is important that it is used selectively and in an appropriate context for several reasons. These campaigns are not equally effective with all audiences; younger and male audiences are more difficult to influence using this approach, and the effects of fear-based appeals are often short-lived (SWOV 2009). More concerning is that research shows that individuals that are most likely to engage in the behaviour, and are most invested in it, are most likely to ignore or reject the message if it is not well-constructed.

However, well-designed fear-based campaigns can be effective, as demonstrated by two compelling examples "the impossible driving and texting test" developed by Responsible Young Drivers in Belgium (http://youtu.be/HbjSWDwJILs) and 'embrace life' by Sussex Safer Roads in the United Kingdom (http://youtu.be/h-8PBx7isoM). These messages illustrate the negative consequences but in ways that are less graphic and confrontational and that rely upon positive emotions. These examples also contain a high degree of personal relevance to the target audience and suggest ways that drivers can protect themselves.

What are the limitations of the research?

There are some important considerations that should be acknowledged in relation the research regarding the effectiveness of road safety campaigns. These include:

- Campaigns are generally not systematically and empirically evaluated.

- It is difficult to determine how to accurately and objectively measure the impact of a campaign on a specific population, and this is one of the leading issues surrounding the evaluation of road safety campaigns. In other words, it can be difficult to identify appropriate outcome measures regarding behaviour change that demonstrate the effectiveness of a campaign.

  Many common evaluation measures include surveys of attitudes, perceptions, and behaviours of road users related to the campaign and its targeted issue. While self-report data can be very useful to understand and interpret message penetration and public concern, these measures do not capture actual changes in behaviour. Observational surveys (i.e., road-side observations to detect increases/decreases of a specific behaviour) provide a solution to this problem but are expensive and time-consuming.

- There are also a variety of methodological research design challenges that are often encountered during road safety campaign evaluations. For example, it can be difficult to identify comparable or representative control groups (i.e., similar populations who are not exposed to the campaign) whose behaviours can be compared to those who are exposed in order to measure behaviour change across the groups. Control group areas may also be exposed to other factors or campaigns that could influence behaviour in similar ways to the experimental group, as was the case demonstrated in the National Highway Traffic Safety Administration's (NHTSA's) distracted driving campaign evaluation (Chaudhary et al. 2014).

- Similarly, many campaigns consist of multiple strategies (e.g., enforcement, TV advertisements, billboards) to ensure that campaign messages are heard and adopted. However, it becomes difficult for researchers to determine which strategy contributed the most to the effectiveness, or lack thereof, of a campaign.

How can research about learning styles inform the development of a campaign?

Education is an important and often under-rated component of effective road safety campaigns. While the ability of a campaign message to capture and engage the attention of an audience is essential to increase awareness about an issue, the true success of a campaign is gauging what people have learned and how they have acted upon that new knowledge. It is for this reason that understanding the process of learning, and the various ways in which people retain information can provide local governments and community partners with an important advantage to inform campaign development.

Neil Fleming's *VAK (visual, auditory, kinesthetic)* model is described as one of the most commonly used representations of the ways in which people receive information. According

to this theory, certain individuals are better able to learn new information depending on how it is disseminated (i.e., seeing it, hearing it, or touching it). Therefore, in order to reach and appeal to as many people as possible, campaigns should include resources and materials that incorporate multiple paths to learning.

Motivation (i.e., the internal state that guides and sustains behaviour and intentions) also plays an important role in the desire or willingness to learn. If there is no motivation to consider a desired change, it is unlikely that individuals will respond to a campaign. Messages should identify and address both intrinsic (innate factors) and extrinsic (external factors) motivators in a campaign. Examples of intrinsic motivational factors can include encouraging individuals to identify and set personal goals, or relating road safety issues to real life situations that may affect them. Conversely, extrinsic motivators could include giving incentives for changing behaviour or highlighting the consequences of failing to make the proposed change.

Table 1: Campaign Effectiveness

Campaign Location	Campaign Issue/Theme	Primary Medium	Target Audience	Cost	Effectiveness
Australia and New Zealand	Tagline – "If you drink then drive, you're a bloody idiot". Using graphic images of physical consequences	Television	Primarily young males aged 18-24	$70 million AUD and $50 million NZD	Most crash reduction effects were found with young females and middle-aged males.
Western Montana	Tagline – "4 out of 5 young adults don't drink and drive".	TV and radio PSAs, newspapers, billboards and movie slide ads. Control counties received low dosage exposure to free radio and TV PSAs and paid newspaper ads. Promotional items with message were distributed statewide	21-34 year olds	$500,000	It successfully changed perceptions about drinking and driving behaviour among peers in target communities.
Syracuse, NY and Hartford, CT	Tagline – "phone in one hand, ticket in the other". High visibility enforcement campaign.	Delivered 4 waves of enforcement between April 2010 and April 2011. The first wave was 2 weeks, the other phases were 1 week. Campaign delivered in English and Spanish with heavy media coverage and support from stakeholders.	Drivers aged 18-45	$559,161USD	Driver surveys showed increased awareness that laws were being enforced, and recognition of slogan.
Quebec	Tagline – "be smart, stay alive, buckle up". Fear-based appeal seatbelt campaign. Visuals equated a 40km/hr crash with a fall off of a 3-storey building by a man with a loaf of bread in one hand and quart of milk in the other, suggesting short trips close to home where most crashes occurred; follow up campaign targeted back seat passengers. Challenged myth that low speed crashes are not dangerous and illustrated negative consequences but made it difficult for the audience to reject the message.	Delivered using mass media (TV and radio) and collateral materials.	N/A	First Phase $1 million CAD Second Phase $1.2 million CAD	It raised usage rates from 67% (one of lowest levels in Canada) to over 93% and changed behaviour among young males who were least likely to buckle up. Longevity and persistence combined with powerful message were keys to success.
Belgium	Tagline – "the safety belt. one second changes everything" or "la ceinture, une seconde qui change tout". Seatbelt campaign designed to increase belt use. Focus on lower speed crashes in urban areas based on crash analysis. Campaign utilized theory of planned behaviour. National campaign in 2008; in which effects on high school and university students were studied.	Campaign consisted of a mix of campaign materials including TV spots, posters, bumper stickers, website, leaflets, billboards on roadways, television programs.	Drivers and passengers	N/A	Study revealed that being exposed does not guarantee an effect and that awareness of exposure is important; visual interest and message placement influence awareness.
Jordan	Tagline – "seatbelts may not be comfortable at first, with use you get used to it". Seatbelt campaign designed to increase belt use. Campaign incorporated protection motivation theory. Emphasis was on the benefits of seatbelts using positive messages.	Delivered over a 4-month period through Mosques/Churches, TV and radio, newspapers and televised educational programs with experts.	General public	N/A	Observation survey and in-person interviews showed increased usage rates and revealed that Mosques/Churches were an effective way to reach the target audience.

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Notes

This document is part of the **Community-Based Toolkit for Road Safety Campaigns.**

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